

## PATENTS

Patent-based indicators provide a measure of the output of a country's R&D, i.e. its inventions. The methodology used for counting patents can however influence the results, as simple counts of patents filed at a national patent office are affected by various kinds of limitations (such as weak international comparability) and highly heterogeneous patent values. To overcome these limits, the OECD has developed triadic patent families, which are designed to capture all important inventions and to be internationally comparable.

### Definition

A patent family is defined as a set of patents registered in various countries (i.e. patent offices) to protect the same invention. Triadic patent families are a set of patents filed at three of these major patent offices: the European Patent Office (EPO), the Japan Patent Office (JPO) and the United States Patent and Trademark Office (USPTO).

Triadic patent family counts are attributed to the country of residence of the inventor and to the date when the patent was first registered.

Triadic patent families are expressed as numbers and per million inhabitants.

### Comparability

The concept of triadic patent families has been developed in order to improve the international comparability and

quality of patent-based indicators. Indeed, only patents registered in the same set of countries are included in the family: home advantage and influence of geographical location are therefore eliminated. Furthermore, patents included in the triadic family are typically of higher economic value: patentees only take on the additional costs and delays of extending the protection of their invention to other countries if they deem it worthwhile.

### Overview

Although the volume of triadic patent families remained relatively steady over time, with about 43 600 triadic patent families filed in 2011, there has been a significant shift in the origin of patented inventions. The share of triadic patent families originating from Europe (27.5%), Japan (31.4%) and the United States (29%) report a loss of 1 to 2 percentage points compared to the levels observed in 2001. Asian countries are increasingly contributing to patent families: the most spectacular growth has been observed by Korea, whose share of all triadic patent families increased from 1.6% in 2001 to 4.0% in 2011. Strong rises are also observed for China and India, with an average growth in the number of triadic patents of more than 30% and 13% a year respectively seen between 2001 and 2011.

When triadic patent families are expressed relative to the total population, Japan, Switzerland, Sweden, Germany and Finland were the five most inventive countries in 2011, with the highest values recorded in Japan (107) and Switzerland (90). Ratios for Austria, Denmark, Israel, Austria, Denmark, Finland, Israel, Korea, the Netherlands and the United States are also above the OECD average (34).

### Sources

- OECD (2013), *OECD Patent Statistics (Database)*.

### Further information

#### Analytical publications

- OECD (2013), *OECD Science, Technology and Industry Scoreboard*, OECD Publishing.
- OECD (2012), *OECD Science, Technology and Industry Outlook*, OECD Publishing.

#### Methodological publications

- Dermis, H. and M. Khan (2004), "Triadic patent families methodology", *OECD Science, Technology and Industry Working Papers*, No. 2004/2.
- OECD (2009), *OECD Patent Statistics Manual*, OECD Publishing.
- Squicciarini, M., H. Dermis and C. Criscuolo (2013), "Measuring patent quality: Indicators of technological and economic value", *OECD Science, Technology and Industry Working Papers*, No. 2013/03.

#### Websites

- OECD work on patent statistics, [www.oecd.org/sti/ipr-statistics](http://www.oecd.org/sti/ipr-statistics).

## Triadic patent families

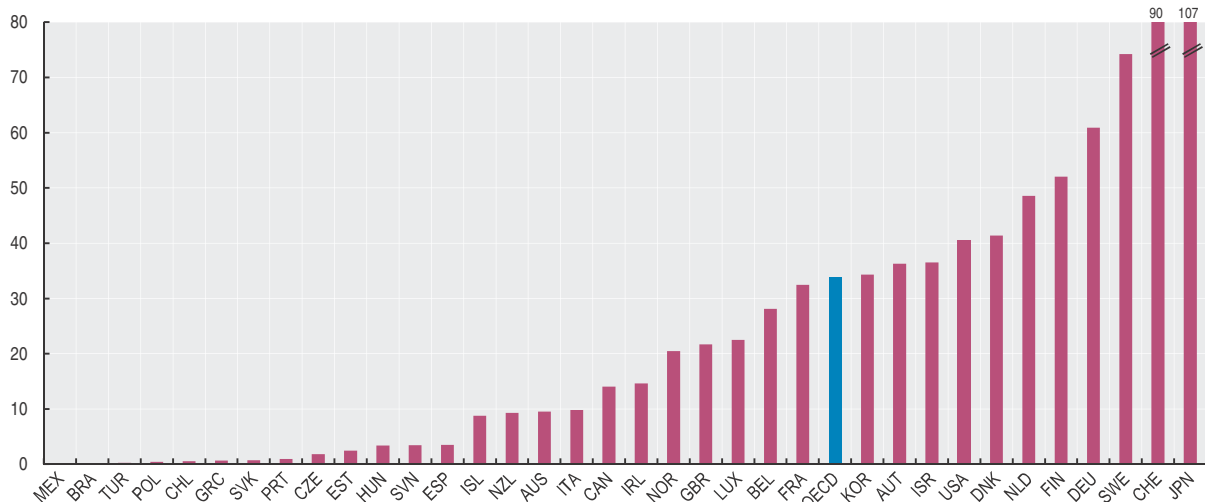
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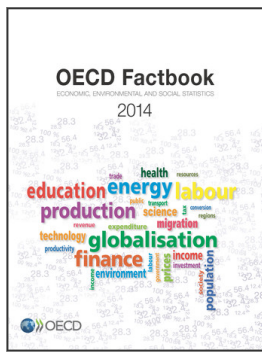
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	298	379	281	290	284	303	283	251	245	235	224	219	212
Austria	260	276	258	234	244	271	298	298	286	273	293	303	306
Belgium	375	329	317	295	281	355	324	321	329	319	293	305	311
Canada	527	525	501	506	492	556	529	521	521	482	482	510	485
Chile	2	2	5	5	3	5	6	7	6	5	9	9	9
Czech Republic	10	9	12	15	16	16	16	17	19	20	18	19	19
Denmark	236	226	186	186	197	235	276	247	257	258	226	226	230
Estonia	1	1	2	0	3	0	1	5	3	3	3	3	3
Finland	453	352	311	204	231	261	264	267	270	264	271	273	280
France	2 353	2 151	1 976	1 998	2 042	2 158	2 150	2 028	2 034	2 041	2 026	2 017	2 053
Germany	6 028	5 823	5 178	5 043	4 996	5 163	5 297	5 107	5 105	4 962	4 985	4 931	4 982
Greece	6	6	8	8	10	8	12	12	11	9	9	7	7
Hungary	40	29	30	28	31	34	32	32	36	36	35	35	34
Iceland	7	11	3	10	4	5	4	4	5	4	4	4	3
Ireland	75	31	49	41	55	58	70	62	74	73	69	66	67
Israel	279	326	288	237	261	310	365	319	299	298	285	279	283
Italy	665	640	654	607	606	640	642	619	615	610	598	597	595
Japan	13 205	14 913	13 321	13 545	14 314	14 851	13 864	13 418	13 451	12 190	12 164	13 269	13 705
Korea	580	732	891	1 182	1 481	1 747	1 651	1 547	1 654	1 438	1 564	1 660	1 709
Luxembourg	22	20	26	10	17	19	15	18	13	15	12	13	12
Mexico	11	9	12	10	12	12	13	15	13	12	9	9	10
Netherlands	919	1 026	924	984	950	956	913	900	848	838	841	779	811
New Zealand	48	48	33	56	58	64	50	52	49	47	43	44	41
Norway	109	106	78	79	81	88	95	91	90	85	101	98	101
Poland	8	9	12	12	10	9	8	8	11	13	15	16	17
Portugal	5	2	5	6	8	5	9	9	17	12	9	9	10
Slovak Republic	3	2	2	3	2	1	2	3	2	3	2	3	4
Slovenia	4	9	6	11	9	8	10	7	7	8	7	7	7
Spain	126	146	153	147	110	152	155	146	151	156	161	165	162
Sweden	884	621	565	531	516	533	636	697	728	712	676	686	701
Switzerland	774	814	746	674	702	727	721	735	699	690	699	707	708
Turkey	3	4	10	8	9	13	12	11	12	12	16	20	21
United Kingdom	1 652	1 633	1 469	1 507	1 519	1 512	1 520	1 501	1 434	1 398	1 390	1 374	1 371
United States	14 598	13 855	13 080	13 878	14 175	14 538	14 686	13 956	13 360	12 986	12 295	12 416	12 649
EU 28	14 138	13 355	12 152	11 895	11 885	12 413	12 675	12 322	12 267	12 040	11 955	11 849	11 998
OECD	44 566	45 066	41 392	42 350	43 730	45 611	44 930	43 233	42 653	40 505	39 835	41 078	41 919
Brazil	27	29	46	33	28	31	29	31	35	35	34	35	36
China	59	71	100	157	202	219	299	311	393	429	630	768	958
India	38	54	82	128	110	106	121	111	119	133	154	171	183
Indonesia	1	4	2	3	2	1	1	4	1	2	2	2	2
Russian Federation	62	73	56	56	51	42	50	44	45	42	41	46	48
South Africa	28	36	16	15	33	20	25	25	23	26	22	22	21
World	45 006	45 570	41 949	43 036	44 419	46 326	45 781	44 098	43 675	41 571	41 119	42 552	43 590

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## Triadic patent families

Number per million inhabitants, 2011

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